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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,773	08/18/2003	Doyle E. Bennett	006214/USA/CMP	4119

7590 11/17/2004
PATENT COUNSEL
Legal Affairs Department
Applied Materials
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EXAMINER

MULLER, BRYAN R

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,773

Applicant(s)

BENNETT ET AL.

Examiner

Bryan R Muller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/30/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 19 and 20 is/are allowed.
- 6) ☐ Claim(s) 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the species represented by Group III in the reply filed on 8/30/2004 is acknowledged.
2. Claims 1-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Groups I and II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/30/2004.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

4. The abstract of the disclosure is objected to because number "56" discussed in the specification is called a diode in paragraph [0041] and is referred to as an amplifier in paragraphs [0043] and [0048]. Also, the RF Amplifier is referred to as number "54" in paragraph [0041] and is referred to as number "56" in paragraph [0048]. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Johansson (2002/0077031 A1).

7. Johansson discloses a polishing system, comprising a polishing pad having a polishing surface, a carrier to hold a substrate against the polishing surface of the polishing pad (abstract, lines 1-3) and an eddy current monitoring system (abstract, lines 5-6) including an induction coil positioned on a side of the polishing surface opposite the substrate (paragraph [0009], lines 2-4), the induction coil to generate a magnetic field through the pad into a sensing region of the system, wherein components of the polishing system with at least a portion positioned within a sensing distance of the polishing pad in the sensing region are nonconductive. The application of Johansson does not directly disclose that components of the polishing system with at least a portion positioned within a sensing distance of the polishing pad in the sensing region are nonconductive but does incorporate by reference a suitable carrier head that is disclosed in U.S. patent application Ser. No. 09/470,820 filed on Dec. 23, 1999 by Steven Zuniga. The carrier head disclosed by Zuniga comprises a flexible internal membrane (116) contacting a flexible external membrane (118), which contacts the substrate to apply pressure. These two components would inherently be within the

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sensing distance of the eddy current monitoring system of Johansson because they are in contact with the substrate which is being sensed. Zuniga discloses that the inner membrane is formed of a flexible and elastic material such as a thermal plastic elastomer (TPE), e.g., HYTREL available from DuPont. U.S. patent number 4,034,265A is extrinsic evidence that the polyester elastomer sold by DuPont under trademark HYTREL is a non-conductive, plastic material (col. 6, lines 12-15). Zuniga also discloses that the outer membrane is formed of a flexible and elastic material such as chloroprene or ethylene propylene rubber or silicone. U.S. patent number 4,500,758A is extrinsic evidence that silicone elastomer is a nonconductive resilient flexible material (col. 2, lines 21-24). Therefore, the invention disclosed by Johansson may inherently have components of the polishing system with at least a portion positioned within a sensing distance of the polishing pad in the sensing region are nonconductive.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johansson (2002/0077031 A1) in view of Anim-Appiah (5,336,997).

10. Johansson discloses the polishing system as discussed supra but fails to disclose that the sensing distance is between about one tenth of an inch and two

inches. Anim-Appiah discloses non-symmetrical inductive sensors that sense changes caused by damping in Eddy currents for a wide variety of non-contact sensing operations. Anim-Appiah teaches that the most widely used method of inductive sensing is ECKO (Eddy Current Killed Oscillator) variation and that sensors based on this mode of operation have a sensing range of up to about 50 mm (1.97 inches) with the average sensing distance in the neighborhood of 15 mm (0.59 inches). Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to use ECKO variation inductive sensing because it is the most widely used and would therefore be more well known within the art allowing for easier maintenance and operation. The use of the ECKO variation would therefore make the sensing distance of the eddy current monitoring system between 0.59 inches and 1.97 inches.

Allowable Subject Matter

11. Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Beutler ('042), Li ('697), Dean ('900 B1) and Dulk ('877) all disclose the need for shielding or the use of non-conductive objects to prevent unwanted interference to sensors that use Eddy currents.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan R Muller whose telephone number is (703)305-0487. The examiner can normally be reached on M-F.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail III can be reached on (703)308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph J. Hail, III
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Technology Center 3700

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11/1/2004